EO 1-SAA09FTR3-005 SHEET 2 OF 3

SAA09F1R3-005 B/L: 264.03

SYS: SRB/ET AFT

ATTACHMENT STRUT HOIST

Critical Item: Hoist Assembly (2 Items)

NOV 2 0 1995

Find Number: None

Criticality Category: 2

SAA No: O9FTR3-005 System/Area: SRB/ET Aft Attachment

Strut Hoist/VAB HB-1

NASA PMN/ H77-1203/

Part No: None Name: SRB/ET Aft Attachment Strut

Hoist

Mfg/ Dresser Industries Inc./ Drawing/ 79K17083/

Part No: Budget #260 SR Sheet No: 1

<u>Function</u>: To remove the SRB/ET Aft Attachment Strut via raising, lowering, and holding motions.

Critical Failure Mode/Failure Mode No: A. Gear Disengages/09FTR3-005.001

B. Automatic Mechanical Load Brake Fails to Engage/09FTR3-005.002

Failure Causes: A. Structural failure of planetary spur gearing component.

B. Structural failure of automatic load brake component.

<u>Failure Effect</u>: Suspended load (strut and sling) drops uncontrolled resulting in possible loss (damage) of a vehicle system. Failure is detectable by:

A. abnormal noises and movements up to and including dropping the load,

B. load drops when operator releases hand chain. Time to effect: seconds.

Acceptance Rationale

<u>Design</u>:

- o The hoist is an off-the-shelf item manufactured by Dresser Industries, Incorporated. Its design complies with American Gear Manufacturers Association (AGMA).
- O Components include bronze load hook, stainless steel alloy load chain, steel gears, automatic load brake, splined shafts, aluminum hoist frame, bronze alloy hand chain, and a bronze alloy mounting hook.
- o The gears are splined to the shafts or integrally machined and are retained in place by shoulders within the confines of the hoist assembly.

EO 1-SAA09FTR3-005 SHEET 3 OF 3

SAAO9FTR3 005
B/L: 264.03
SYS: SRB/ET AFT
ATTACHMENT
STRUT HOIST

Hoist Assembly (Continued)

NOV 2 0 1995

- One end of the shaft is splined to the automatic load brake while the other end has the pinion gear machined into it to drive the planetary spur gearing.
- O Load bearing members, such as the gear case and shafts, have been designed so that the calculated static stress, based upon the rated load, does not exceed 25% of the average ultimate strength of the material; i.e. 4:1 safety factor.
- o The hoists are rated at 400 pounds (safe working load) and an Aft Attachment Strut weighs approximately 250 pounds. This results in an operational safety factor of 6.4:1.

Test:

- o An acceptance test at 125% rated load was performed on initial installation.
- A load test at 100% rated load is performed annually in accordance with manufacturer operating procedures per OMI B6116.
- OMRS File VI requires the annual performance of a rated load test.
- An annual operational check of the hoist under full rated load is performed per OMI B6116.
- Pre-operational positioning of the hoist per OMI B5143 verifies proper operation of all functions.
- Tests are performed in accordance with NSS/GO-1740.9 requirements.

Inspection:

- o A semi-annual inspection of the hoists is performed by OMI B6115.
- o Inspections are performed in accordance with NSS/GO-1740.9 requirements.

SAA09FTR3-005

B/L: 264.03

SYS: SRB/ET AFT

ATTACHMENT STRUT HOIST

Hoist Assembly (Continued)

NOV 2 0 1995

Failure History:

- o The PRACA database was queried and no failure data was retrieved against this component.
- o The GIDEP failure data interchange system has been researched and no failures of this component were found.

Operational Use:

o Correcting Action:

There is no action which can be taken to mitigate the failure effect.

o Timeframe:

Since no correcting action is available, timeframe does not apply.